

BUSH HOG®

ZERO TURN MOWERS



Operator's Manual

ASSEMBLY ● OPERATION ● MAINTENANCE

CONGRATULATIONS!

You have invested in the best implement of its type on the market today.

The care you give your Bush Hog implement will greatly determine your satisfaction with its performance and its service life. We urge a careful study of this manual to provide you with a thorough understanding of your new implement before operating, as well as suggestions for operation and maintenance.

If your manual should become lost or destroyed, Bush Hog will be glad to provide you with a new copy. Order from Bush Hog, P. O. Box 1039, Selma, Alabama 36702-1039.

As an authorized Bush Hog dealer, we stock genuine Bush Hog parts which are manufactured with the same precision and skill as our original equipment. Our trained service personnel are well informed on methods required to service Bush Hog equipment, and are ready and able to help you.

Should you require additional information or assistance, please contact us.

YOUR AUTHORIZED
BUSH HOG DEALER

BECAUSE BUSH HOG MAINTAINS AN ONGOING PROGRAM OF PRODUCT IMPROVEMENT, WE RESERVE THE RIGHT TO MAKE IMPROVEMENTS IN DESIGN OR CHANGES IN SPECIFICATIONS WITHOUT INCURRING ANY OBLIGATION TO INSTALL THEM ON UNITS PREVIOUSLY SOLD.

BECAUSE OF THE POSSIBILITY THAT SOME PHOTOGRAPHS IN THIS MANUAL WERE TAKEN OF PROTOTYPE MODELS, PRODUCTION MODELS MAY VARY IN SOME DETAIL. IN ADDITION, SOME PHOTOGRAPHS MAY SHOW SHIELDS REMOVED FOR PURPOSES OF CLARITY. **NEVER OPERATE** THIS IMPLEMENT WITHOUT ALL SHIELDS IN PLACE.

ZERO TURN SERIES

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RETAIL CUSTOMER'S RESPONSIBILITY UNDER THE BUSH HOG WARRANTY

It is the Retail Customer and/or Operator's responsibility to read the Operator's Manual, to operate, lubricate, maintain and store the product in accordance with all instructions and safety procedures. Failure of the operator to read the Operator's Manual is a misuse of this equipment.

It is the Retail Customer and/or Operator's responsibility to inspect the product and to have any part(s) repaired or replaced when continued operation would cause damage or excessive wear to other parts or cause a safety hazard.

It is the Retail Customer's responsibility to deliver the product to the authorized Bush Hog Dealer, from whom he purchased it, for service or replacement of defective parts which are covered by warranty. Repairs to be submitted for warranty consideration must be made within forty-five (45) days of failure.

It is the Retail Customer's responsibility for any cost incurred by the Dealer for traveling to or hauling of the product for the purpose of performing a warranty obligation or inspection.

DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

BUSH HOG® ZERO TURN MOWER LIMITED WARRANTY



Bush Hog warrants to the original purchaser of any new Bush Hog equipment, purchased from an authorized Bush Hog dealer, that the equipment be free from defects in material and workmanship for a period of two (2) years from date of retail sale. The obligation of Bush Hog to the purchaser under this warranty is limited to the repair or replacement of defective parts.

Replacement or repair parts installed in the equipment covered by this limited warranty are warranted for ninety (90) days from the date of purchase of such part or to the expiration of the applicable new equipment warranty period, whichever occurs later. Warranted parts shall be provided at no cost to the user at an authorized Bush Hog dealer during regular working hours. Bush Hog reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

DISCLAIMER OF IMPLIED WARRANTIES & CONSEQUENTIAL DAMAGES

Bush Hog's obligation under this limited warranty, to the extent allowed by law, is in lieu of all warranties, implied or expressed, **INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE** and any liability for incidental and consequential damages with respect to the sale or use of the items warranted. Such incidental and consequential damages shall include but not be limited to: transportation charges other than normal freight charges; cost of installation other than cost approved by Bush Hog; duty; taxes; charges for normal service or adjustment; loss of crops or any other loss of income; rental of substitute equipment, expenses due to loss, damage, detention or delay in the delivery of equipment or parts resulting from acts beyond the control of Bush Hog.

THIS LIMITED WARRANTY SHALL NOT APPLY:

1. To transportation to and from dealership or service calls made by dealers, ie, driving time, towing, pickup and delivery.
2. To vendor items which carry their own warranties, such as engines, batteries, tires, and tubes.
3. If the unit has been subjected to misapplication, abuse, misuse, negligence, fire or other accident.
4. If parts not made or supplied by Bush Hog have been used in connection with the unit, if, in the sole judgement of Bush Hog such use affects its performance, stability or reliability.
5. If the unit has been altered or repaired outside of an authorized Bush Hog dealership in a manner which, in the sole judgement of Bush Hog, affects its performance, stability or reliability.
6. To normal maintenance service and normal replacement items such as gearbox lubricant, hydraulic fluid, worn blades, or to normal deterioration of such things as belts and exterior finish due to use or exposure.
7. To expendable or wear items such as teeth, chains, sprockets, belts, springs and any other items that in the company's sole judgement is a wear item.

NO EMPLOYEE OR REPRESENTATIVE OF BUSH HOG IS AUTHORIZED TO CHANGE THIS LIMITED WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY UNLESS SUCH CHANGE IS MADE IN WRITING AND SIGNED BY BUSH HOG'S SERVICE MANAGER, POST OFFICE BOX 1039, SELMA, ALABAMA 36702-1039.



Record the model number, serial number and date purchased. This information will be helpful to your dealer if parts or service are required.

MAKE CERTAIN THE WARRANTY REGISTRATION CARD HAS BEEN FILED WITH BUSH HOG/
SELMA, ALABAMA

MODEL NUMBER _____

SERIAL NUMBER _____

DATE OF RETAIL SALE _____

DEALER PREPARATION CHECK LIST

ZERO TURN

BEFORE DELIVERING MACHINE — The following check list should be completed.
Use the Operator's Manual as a guide.

- ☐ 1. Engine has been serviced.
- ☐ 2. Battery fluid level is checked.
- ☐ 3. Low oil pressure warning buzzer checked for operation.
- ☐ 4. Kill switches checked for operation.
- ☐ 5. Assembly completed.
- ☐ 6. Gearbox filled with oil.
- ☐ 7. All fittings lubricated.
- ☐ 8. Hydraulic Reservoir filled with oil.
- ☐ 9. All shields in place and in good condition.
- ☐ 10. All fasteners torqued to specifications given in Torque Chart.
- ☐ 11. All decals in place and readable. (See decal page.)
- ☐ 12. Overall condition good (i.e. paint, welds)
- ☐ 13. Parking brake checked and adjusted, if necessary.
- ☐ 14. Steering checked and adjusted, if necessary.
- ☐ 15. Check tire pressure.
- ☐ 16. Operators manual has been delivered to owner and he has been instructed on the safe and proper use of the cutter.

Dealer's Signature _____

Purchaser's Signature _____

THIS CHECKLIST TO REMAIN IN OWNER'S MANUAL

It is the responsibility of the dealer to complete the procedures listed above before delivery of this implement to the customer.

IMPORTANT SAFETY PRECAUTIONS

This symbol is used to call attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol, carefully read the message that follows and heed its advice. Failure to comply with safety precautions could result in serious bodily injury.



In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel in the operation, transport, maintenance and storage of equipment. Lack of attention to safety can result in accident, personal injury, reduction of efficiency and worst of all—loss of life. Watch for safety hazards and correct deficiencies promptly. Use the following safety precautions as a general guide to safe operations when using this machine. Additional safety precautions are used throughout this manual for specific operating and maintenance procedures. Read this manual and review the safety precautions often until you know the limitations.

ACCIDENT PATTERNS TO AVOID

1. **CONTACT WITH THE ROTATING BLADE** - This accident usually happens when the operator is clearing the discharge chute of grass, (especially when the grass is wet), or when the operator adjusts the machine without turning it off and waiting for the blades to completely stop.
2. **PROPELLED OBJECTS** - Sticks, rocks, wires, and other objects can be propelled out through the discharge chute or from under the mower housing. Bystanders are particularly vulnerable.
3. **GRASS CATCHER OR GUARD** - The mower shall not be operated without either the entire grass catcher or guard in place.
4. **OVERTURNING** - This happens when riding mowers are used on steep slopes, embankments or hills. The operator in these cases can come in contact with blades or sustain injuries during a fall.
5. **MOWER RUNNING OVER THE VICTIM** - This usually happens when a riding mower is driven in reverse. The accident victims are most often young children whom, unseen by the operator of the mower, were in the area being mowed.

WE SHARE YOUR DESIRE TO PROTECT YOURSELF, YOUR FAMILY, YOUR FRIEND AND YOUR NEIGHBORS FROM ACCIDENTAL INJURY. OBSERVING AND ENFORCING THE FOLLOWING GUIDE LINES WILL HELP TO INSURE THE SAFETY OF EVERYONE.

SAFETY INSTRUCTIONS AND RECOMMENDATIONS

1. **PEOPLE WHO OPERATE, SERVICE, OR ARE OTHERWISE ASSOCIATED** with the Zero Turning Radius Mower should be trained in its proper use and warned of its dangers. Before operating, adjusting, or servicing the Zero Turning Radius Mower they should read and understand this entire manual and the owner's engine manual.
2. **AVOID CONTACT WITH MOVING PARTS.** Keep hands and feet from under mowing deck and away from blades at all times. Turn engine (motor) off if you must unclog the chute.
3. **AVOID HILLS AND SLOPES.** Use extreme caution when mowing up or down slopes. **NEVER** mow across the face of a slope. If a slope must be ascended, drive up the slope; back down when descending. Reduce speed and use caution to start, stop and maneuver. To prevent loss of control on a slope, avoid sharp turns, sudden changes in direction, and sudden stops and starts.
4. **DISENGAGE POWER TO MOWER BEFORE BACKING UP.** Do not mow in reverse unless absolutely necessary and then only after turning around and observing the entire area behind the mower. Go slowly. Most "running over victim" accidents occur in reverse.
5. **BEGINNING OPERATORS SHOULD LEARN HOW TO STEER** the Zero Turning Radius Mower before attempting to mow. Start with slow engine speed and drive without the blades engaged in open area until comfortable with the machine.
6. **KNOW HOW TO STOP QUICKLY.** Know the location and operation of every control, especially how to brake and how to disengage the mower blades.

SAFETY CONTINUED

7. DO NOT MOVE THE CONTROL LEVERS from forward position to reverse position rapidly. The speed and/or direction of travel is affected instantly by movement of the Control Levers.
8. DO NOT ALLOW CHILDREN TO OPERATE MOWER. Do not allow others who have not had instructions to operate mower.
9. ALWAYS TURN ENGINE OFF AND REMOVE KEY before leaving mower to prevent children and inexperienced operators from starting the engine. Never leave the mower unattended with engine running. Always wait for all moving parts and all sounds to stop before leaving operator's seat. Always set the parking brake on an unattended mower.
10. WEAR STURDY, ROUGH-SOLED WORK SHOES AND CLOSE-FITTING SLACKS AND SHIRTS. Never operate mower in bare feet, sandals or sneakers.
11. WEAR PERSONAL PROTECTIVE EQUIPMENT such as, but not limited to, protection for eyes, ears, feet, hands and head when operating or repairing equipment. Do not wear loose clothing or jewelry that may catch on equipment moving parts.
12. NEVER CARRY PASSENGERS.
13. KNOW THE AREA YOU ARE TO MOW. Watch for hidden dangers such as rocks, roots, sticks, holes, bumps, and drop-offs, etc. Before mowing, pick up all debris in area to be mowed. Sharp and hard objects can be propelled at a high speed and can act like shrapnel. Walk through tall grass BEFORE MOWING to make sure there are no hidden dangers. Mow higher than desired in tall grass to expose any hidden objects and/or obstacles, clean the area, and then mow to the desired height.
14. BE SURE THE AREA IS CLEAR of other people before mowing. Stop machine if anyone enters the area.
15. NEVER REFUEL A MOWER INDOORS. Allow the engine time to cool before refueling. Unseen vapors may be ignited by a spark. Always clean up spilled gasoline. Never run the engine indoors in a garage or any other closed building. Allow engine to cool before storing in any enclosure. The engine exhaust and gasoline fumes are dangerous.
16. NEVER REMOVE THE FUEL CAP or add gasoline to a running or hot engine or an engine that has not been allowed to cool for several minutes after running. Always make sure the gas cap is in place.
17. DO NOT SMOKE AROUND THE MOWER or the gasoline storage container. Gasoline fumes can easily ignite.
18. KEEP GASOLINE IN A WELL-VENTILATED AREA away from your living quarters and in tightly capped safety cans. Never store mower with gasoline in the tank inside a building where fumes may reach open flame or spark.
19. DISENGAGE BLADE, STOP ENGINE, ENGAGE PARKING BRAKE AND REMOVE IGNITION KEY before any servicing. Be sure all moving parts and all sounds have stopped. Let engine cool and disconnect the spark plugs so the engine cannot start by accident. A SLIGHT ROTATION OF THE BLADES COULD START THE ENGINE.
20. KEEP ALL NUTS, BOLTS, AND SCREWS TIGHT to be sure equipment is in safe working condition, especially blade bolts.
21. VEHICLE SHOULD BE STOPPED AND INSPECTED FOR DAMAGE after striking a foreign object and the damage should be repaired before restarting and operating the equipment. Stop immediately and check for damage or loose parts if mower should start vibrating.
22. DISENGAGE BLADES BEFORE DRIVING ACROSS WALKS or projecting objects.
23. KEEP SAFETY DEVICES AND GUARDS IN PLACE. If any of the safety switches become inoperable, have them repaired immediately.
24. DO NOT STEP OR STAND ON THE MOWER HOUSING. Step or stand only on the tread areas on the deck.
25. WATCH OUT FOR TRAFFIC near roadways and when crossing roads.
26. THIS MACHINE IS NOT MEANT FOR HIGHWAY OR STREET USE. It is not a recreational vehicle and it should not be operated as such.
27. DO NOT USE MOWER WHEN GRASS IS WET OR SLIPPERY.
28. MOW ONLY DURING DAYLIGHT.
29. ALWAYS DISENGAGE THE MOWER BLADE CLUTCH when transporting.
30. If your tractor is equipped with ROPS (Roll-Over Protection Structure), you must wear your seat belt.

IMPORTANT FEDERAL LAWS AND REGULATIONS* CONCERNING EMPLOYERS, EMPLOYEES AND OPERATIONS.

*(This section is intended to explain in broad terms the concept and effect of the following federal laws and regulations. It is not intended as a legal interpretation of the laws and should not be considered as such).

U.S. Public Law 91-596 (The Williams-Steiger Occupational and Health Act of 1970) OSHA

This Act Seeks:

“...to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources...”

DUTIES

Sec. 5 (a) Each employer—

- (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
- (2) shall comply with occupational safety and health standards promulgated under this Act.
 - (b) Each employee shall comply with occupational safety and health standards and all rules, regulations and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA Regulations

Current OSHA regulations state in part: “At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved.” These will include (but are not limited to) instructions to:

Keep all guards in place when the machine is in operation;

Permit no riders on equipment;

Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning or unclogging the equipment, except where the machine must be running to be properly serviced or maintained, in which case the employer shall instruct employees as to all steps and procedures which are necessary to safely service or maintain the equipment.

Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine.

Child Labor Under 16 Years Old

Some regulations specify that no one under the age of 16 may operate power machinery. It is your responsibility to know what these regulations are in your own area or situation. (Refer to U.S. Dept. of Labor, Employment Standard Administration, Wage & Home Division, Child Labor Bulletin #102.)

SECTION I

INTRODUCTION AND DESCRIPTION



INTRODUCTION

We are pleased to have you as a Bush Hog customer. Your Bush Hog Zero Turn Mower has been carefully designed to give maximum service with minimum down time. This manual is provided to give you the necessary operating and maintenance instructions for keeping your mower in top operating condition. Please read this manual thoroughly. Understand what each control is for and how to use it. Observe all safety precautions decaled on the machine and noted throughout the manual for safe operation of implement. If any assistance or additional information is needed, contact your authorized Bush Hog dealer. Optional equipment such as Roll Over Protection Systems, Seat Belts or Front Blade Assemblies are covered in their individual instructions, which come with the kits.

NOTE:

All references made to right, left, front, rear, top or bottom is as viewed facing the direction of forward travel with implement properly attached to power unit.

DESCRIPTION

The Zero Turn is intended for use on large lawns and other maintained areas where a smooth, even cut is

desired and superior maneuverability is needed. The tractor unit consists of either an 18 hp Kohler, 22 hp Kohler, 25 hp Kohler, or 22 hp water cooled Kawasaki, two cylinder engine, and a power take-off (PTO) shaft. The engine has a pressurized oil lubrication system with spin-on type filter, fused electronic ignition, electric start and a 5 gallon fuel tank.

Two hydrostatic pumps and two wheel motors are used for propelling and steering. The pumps are belt driven by the engine output shaft. One lever for each drive controls both speed and direction. This independent control of each drive wheel coupled with continuously variable speed selection gives the Zero Turn mower exceptional maneuverability.

The mower deck is driven by a power take-off (PTO) shaft from the engine. An electrically controlled clutch is used to engage/disengage the PTO.

The mower attachment is available in three sizes; 48", 54", and 60" cut. The mower has three uplift blades, driven by the input gearbox through a single V-belt controlled by a spring loaded tensioner.

CONTROLS

SAFETY INTERLOCK SYSTEM

Your Bush Hog Zero Turn is equipped with a Safety Interlock System that is designed to help prevent possible serious injuries. Understanding and maintaining this system is vital, for safe operation.

To Start Engine:

1. Blades (PTO) must be disengaged.
2. Control levers in neutral (swung out).
3. Parking brake on.
4. Operator in seat.

The Engine Will Kill If:

1. The operator leaves the seat with:
 - a. The control levers out of neutral (swung in).
 - b. The blades are engaged.
 - c. The parking brake is off.
 - d. All of the above.
2. The park brake is on before the control levers are in neutral (swung out).

DO NOT OPERATE MOWER IF SAFETY SWITCHES ARE NOT OPERATING PROPERLY.



WARNING

DO NOT OPERATE MACHINE UNLESS INTERLOCK SYSTEM FUNCTIONS PROPERLY. FAILURE TO HEED THIS WARNING MAY RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.

TRACTOR SPECIFICATIONS

Width - All Models 49"

Height - Kohler Models (Top of seat back) 46"
Kawasaki (Top of seat back) 46"
All Models with ROPS 72"

Fuel Tank Approx. 5 gallons

Hydrostatic Fluid Reservoir Approx. 3 gallons

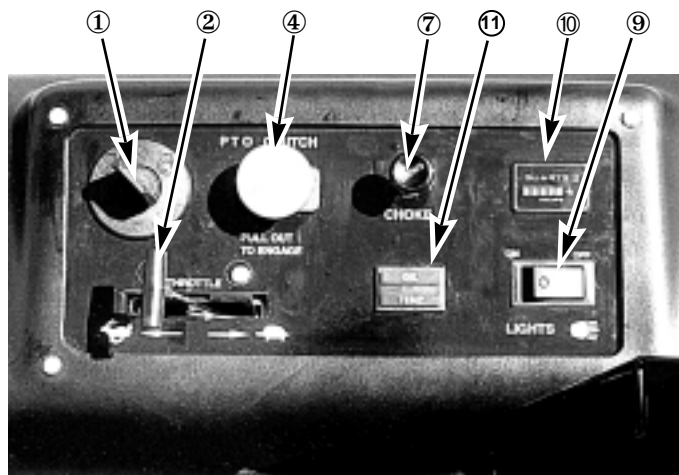
Hydrostatic Pumps- All Models .. (2) Hydro-Gear pumps

Engine - Zero Turn 18 18 h.p. Kohler Command
Zero Turn 22 22 h.p. Kohler Command
Zero Turn 25 25 h.p. Kohler Command
Zero Turn 22W 22 h.p. Water Cooled Kawasaki

Tires - All Models - Front 410/350 x 4
Drive Turf 20 - 10.00 x 10
Bar 21 - 11.00 x 10
Knobby 20 - 11.00 x 10
Rear (Single Wheel) ... 13 - 6.50 x 6
(Dual Wheels) 13 - 6.50 x 6

CONTROL LOCATIONS

- ① Ignition Key - On right hand control console.
- ② Engine Throttle - On right hand control console.
- ③ Two Steering/Speed Control Levers - In front of seat at side. (Not shown below)
- ④ PTO Clutch Switch - On right hand control console.
- ⑤ Parking Brake Lever - On left hand control console. (Not shown below)
- ⑥ Blade Height Adjust Lever - Right side of deck. (Not shown below)
- ⑦ Choke - On right hand control console.
- ⑧ Hydrostatic Pump Bypass Valve - Right sides of pumps. (Not shown below)
- ⑨ Light Switch - On right hand control console.
- ⑩ Hour Meter - On right hand control console.
- ⑪ Warning Light - On right hand control console.



DECK SPECIFICATIONS

ITEM	D 48-1	D54-1	D 60-1
Cutting width	48"	54"	60"
Cutting Height -----	1.00" to 5.00"-----		
Blades	17"	19"	21"
Overall width including chute	63-1/2"	66-1/2"	73-1/2"
Material thickness - skirt -----	7 GA.-----		
- deck -----	10 GA.-----		
Reinforcement plate -----	7 GA.-----		
Spindle bearings -----	25 mm-----		

SECTION II OPERATION

GENERAL SAFETY

Only qualified people familiar with this operator's manual should operate this machine. Operator should wear hard hat, safety glasses, and safety shoes. Avoid loose fitting clothing or jewelry. The operator should read, understand and practice all safety messages shown on the caution, warning and danger decals affixed to the machine to avoid serious injury or death. Before beginning operation, clear work area of any objects that may be picked up and thrown by mower. Check for ditches, stumps, holes or other obstacles that could upset power unit or damage mower. Always push steering levers apart, set parking brake, disengage PTO, turn off engine, and allow blades to come to a complete stop before leaving operator's seat. Do not operate without all shields in place and in good condition.

PRE-OPERATION CHECKLIST

1. Make sure fuel tank is full. Use regular unleaded gasoline. (See engine owner's manual for more details)



WARNING

**AVOID SERIOUS INJURY OR DEATH:
GASOLINE IS EXTREMELY FLAMMABLE AND
EXPLOSIVE UNDER CERTAIN CONDITIONS.**

- REFUEL IN A WELL VENTILATED AREA WITH ENGINE STOPPED.
 - DO NOT SMOKE OR ALLOW FLAMES OR SPARKS IN THE REFUELING AREA OR WHERE GASOLINE IS BEING STORED.
 - DO NOT OVERFILL FUEL TANK. AFTER REFUELING, MAKE CERTAIN THE TANK CAP IS CLOSED PROPERLY AND SECURELY.
 - BE CAREFUL NOT TO SPILL FUEL WHEN REFUELING. FUEL VAPOR OR SPILLED FUEL MAY IGNITE. IF ANY FUEL IS SPILLED, MAKE SURE THE AREA IS DRY BEFORE STARTING THE ENGINE.
 - KEEP OUT OF REACH OF CHILDREN
2. Make sure dirt and foreign matter are kept out of fuel tank. Use a clean funnel and fuel can.
 3. **Do not mix oil with gasoline.**
 4. Do not use white, high test or premium gasoline. Do not use de-icers, carburetor cleaners or other such additives.
 5. Check the crankcase oil level. Make sure the engine is off. The mower should be parked on a level area. Do not overfill. (See your engine manual for more detailed instructions.)
 6. Check the hydrostatic transmission oil level. (See "Maintenance" section of this manual.)
 7. Check battery fluid level.

8. Inspect V-belts

9. **Check tire pressure: Deck tires - 11", 22 psi, Tire Sealant Filled; Drive tires - 20", Turf Tire - 22 psi, Bar Tire - 22 psi, Knobby Tire (ATV Type) - 5 psi; Rear tires - 13", 18 psi.**
10. Make sure underside of mower deck is free of grass.
11. Make sure mower blades are sharp and secured tightly.
12. Clean the air intake screen on the engine if necessary.
13. Perform any other maintenance as it becomes necessary. (See "Maintenance" section)
14. Check low oil pressure warning buzzer for operation. (It should "sound-off" whenever ignition key is in the "on" position, but engine is not running.)
15. Check parking brake operation by disengaging hydrostatic pumps (freewheeling position), and placing the brake lever in the "on" position. Attempt to rock tractor by hand. Both drive wheels should be locked. When the brake handle is in the "off" position, both drive wheels should turn freely. If there is a problem in either position, refer to adjustment procedure in the maintenance section.



WARNING

**ENGINE EXHAUST GASES CONTAIN
POISONOUS CARBON MONOXIDE.**

- NEVER RUN ENGINE IN A CLOSED BUILDING OR CONFINED AREA.
- AVOID INHALING EXHAUST GASES.

OPERATION

1. MOVE CONTROL LEVERS TO neutral "OUT" position by pushing each one straight sideways.
2. SET PARKING BRAKE. Pull rearward to set.
3. DISENGAGE MOWER BLADE CLUTCH by moving clutch switch to "OFF" (down) position.
4. SET ENGINE CHOKE CONTROL for cold starts to full position.
5. SET ENGINE THROTTLE TO 1/2 throttle.
6. TURN IGNITION KEY to "START" position and release to "RUN" as soon as engine starts. NOTE: Prolonged cranking will damage starter motor and shorten the battery life.
7. ADJUST ENGINE THROTTLE AND CHOKE for desired engine smoothness and speed. NOTE: When mowing, always run engine at full throttle.
8. RELEASE PARKING BRAKE. Push brake lever forward to release.

⚠ CAUTION ⚠

If the operator is inexperienced with the zero turning radius lever steering/speed control, he/she should follow these recommendations: Disengage the mower blades. Go very slowly until thoroughly familiar with the machine. Keep away from fences, buildings, and other obstructions. While becoming familiar with the machine, move the Control Levers smoothly and slowly. Practice until operation is smooth and efficient.

9. TO DRIVE: Adjust seat forward or backward for operator comfort. Move the Control Levers to the "IN" position. Move Control Levers forward to move forward. Move levers slowly forward to increase speed. To reverse direction, move the Control Lever on the side to which you want to turn slightly rearward of the other Control Lever. To turn on a zero radius axis, go slowly and pull one Control Lever back and push the other Control Lever forward, depending on which direction you wish to turn.

⚠ WARNING ⚠

AVOID SERIOUS INJURY OR DEATH: DO NOT MOVE STEERING LEVERS FROM FORWARD TO REVERSE OR REVERSE TO FORWARD POSITION RAPIDLY. A SUDDEN CHANGE IN DIRECTION MAY CAUSE LOSS OF CONTROL AND/OR DAMAGE TO EQUIPMENT. FOR SMOOTH, SAFE OPERATION, MOVE THE CONTROL LEVERS IN A GENTLE, SLOW MOTION, ESPECIALLY ON GRADES.

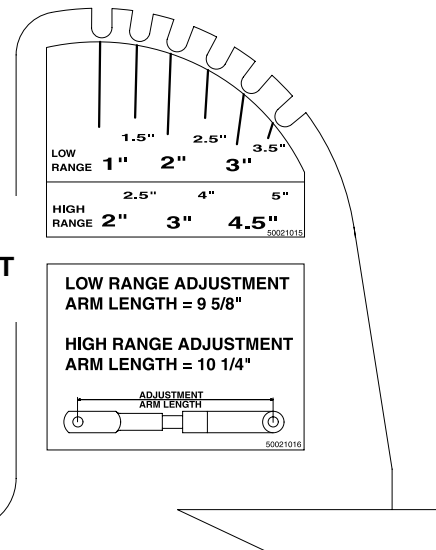
10. BRAKING: To brake mower, gently move Control Levers in the direction opposite to travel. If the parking brake is engaged with the Control Levers in the "IN" position the engine will stop.
11. CUTTING HEIGHT ADJUSTMENT: Cutting height is changed by moving the deck adjusting lever forward to lower the cut and rearward to raise the cut.

There are two ranges of travel allowing the mower deck to be adjusted from 1" - 3-1/2", referred to as the low range, and 2" - 5", referred to as the high range.

To obtain the low range deck heights, adjust the short adjusting assembly to 9-5/8". This length gives cutting heights from 1" - 3-1/2" in 1/2" increments.

To obtain the high range deck heights, adjust the short adjusting assembly to 10-1/4". This length gives cutting heights from 2" - 5" in 1/2" increments.

**CUTTING
HEIGHT
ADJUSTMENT
DECALS**



12. ENGAGE MOWER BLADES by pulling up on the PTO clutch switch. The engine will not start if the PTO switch is engaged. If the engine is running while the PTO clutch is engaged and the operator leaves the seat, the engine will stop.

⚠ CAUTION ⚠

AVOID HILLS AND SLOPES. USE EXTREME CAUTION WHEN MOWING UP OR DOWN SLOPES. NEVER MOW ACROSS THE FACE OF A SLOPE. IF A SLOPE MUST BE ASCENDED, DRIVE UP THE SLOPE; BACK DOWN WHEN DESCENDING.

13. TO STOP:
- A. Slow engine speed with throttle to slowest position
 - B. Disengage the mower blade clutch by moving the PTO clutch switch to the "OFF" position.
 - C. Move Control Levers to neutral position and then to the "OUT" position.
 - D. Set the parking brake.
 - E. Turn ignition key to "OFF" position.
 - F. Remove the key and wait for all movement and all sound to cease before dismounting.

⚠ WARNING ⚠

AVOID SERIOUS INJURIES TO OTHERS: ALWAYS REMOVE THE KEY FROM THE IGNITION SWITCH WHENEVER THE MOWER IS UNATTENDED TO PREVENT CHILDREN OR UNAUTHORIZED PERSONS FROM STARTING THE ENGINE.

14. PUMP BYPASS-TO MOVE THE TRACTOR WITHOUT POWER: The pump bypass valves are located on the right sides of each pump. Access to the valve controls is from the underside of the tractor. Turn the control counter-clockwise two complete turns to release the pump for free wheeling; turn them clockwise for operation.

Pump as seen from above. Use a rod through the hex head, or a 5/8" wrench to open or close the valve.



NOTE: To move the tractor without power, the pumps must be unlocked and in the free wheel position. Failure to do so could possibly damage the hydraulic motors. Never pull at more than 2 MPH.

MOWING RECOMMENDATIONS

1. Keep mower blades sharp.
2. Make sure deck and discharge chute are clean.



TO AVOID SERIOUS INJURY FROM BLADE CONTACT, POWER MUST BE OFF TO CLEAN DISCHARGE CHUTE



KEEP HANDS AND FEET AWAY FROM UNDERNEATH MOWER TO AVOID SERIOUS INJURY OR DEATH.



ROTARY MOWERS CAN DISCHARGE OBJECTS AT HIGH SPEEDS. TO AVOID SERIOUS INJURIES OR DEATH:

- OPERATE ONLY WITH SIDE BANDS IN GOOD REPAIR AND CHUTE OR GRASS CATCHER ATTACHMENT INSTALLED.
- KEEP CHILDREN, PETS, AND BYSTANDERS AWAY FROM THE WORK AREA.
- DO NOT OPERATE MOWER IN THE VICINITY OF OTHER PERSONS.
- DISCHARGE AWAY FROM BUILDINGS,

MOWER DECK TILT-UP PROCEDURE



STOP ENGINE, SET PARKING BRAKE, REMOVE IGNITION KEY AND SPARK PLUG WIRES FOR SAFETY. WEAR PROTECTIVE GLOVES AND USE CARE WHEN LIFTING TO PREVENT THE DECK FROM ACCIDENTALLY FALLING.

REFER TO PHOTOGRAPHS ON FOLLOWING PAGE FOR DETAILED VIEWS

1. Remove the pin holding the deck lift bar and

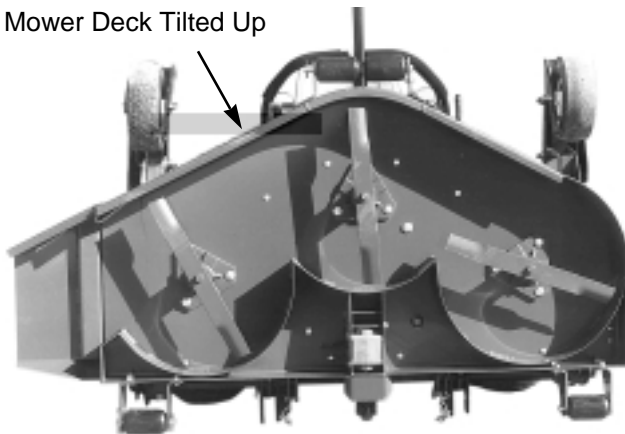
slide the bar from its stored position.

2. Fold steering levers outward and raise the foot deck into vertical position and lock into place; move the levers to the in position.
3. Push the height control handle all the way forward past lowest cutting height position. Remove deck locking pins.
4. Depress the deck weight transfer arms with the lift bar and unlatch the lift chains.
5. Insert the deck lift bar into the lift tube, locking in place with the pin, and lift the front of the deck rotating it past 90 degrees.
6. Install pins in the locking holes to secure deck in the folded position.
7. Remove the deck lift bar.

LOWERING & REATTACHING THE DECK

1. Remove the pins from the locking holes used to secure the folded deck.
2. Insert the deck lift bar into the lift tube, locking in place with the pin, and rotate the deck back to the horizontal position.
3. Move the deck handle assembly past the lowest cutting position to assist in re-installing the deck locking pins.
4. Depress the weight transfer arms with the lift bar and latch the lift chains.
5. Insert the deck lift bar back in the stored position and pin in place.
6. Lower the foot deck and re-adjust the deck handle to the desired cutting height.

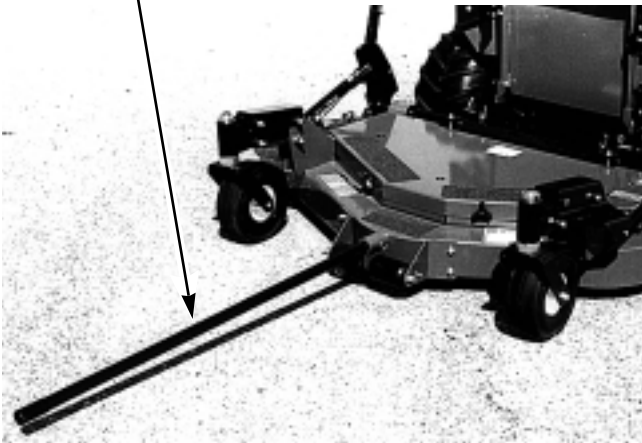
Mower Deck Tilted Up



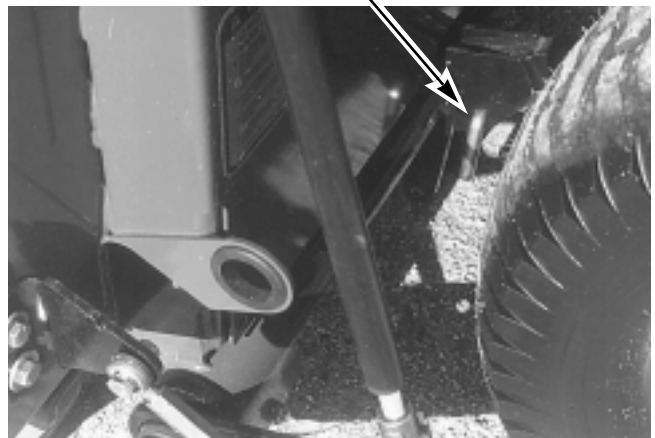
THE POWER UNIT IS VERY UNSTABLE WITHOUT AN ATTACHMENT (MOWER, ETC.). OPERATION WITHOUT AN ATTACHMENT CAN CAUSE SERIOUS INJURY OR DEATH DUE TO POWER UNIT OVERTURNING.

DECK TILT PROCEDURE (48 " DECK SHOWN)

Deck Lift Bar Installed For Rotating Deck



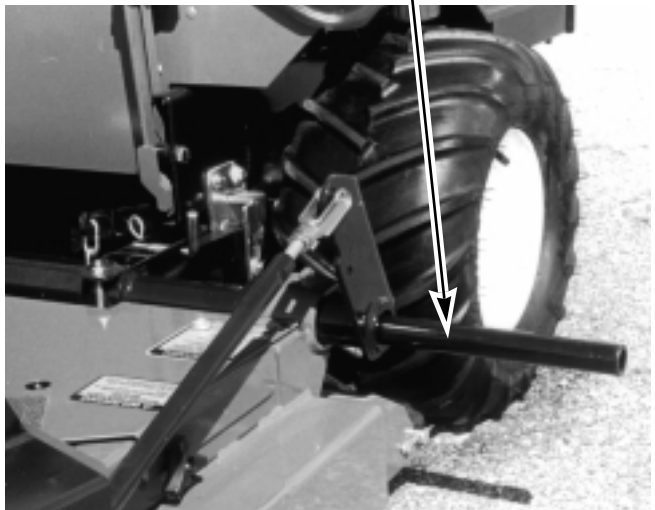
Deck Pinned Into Raised Position



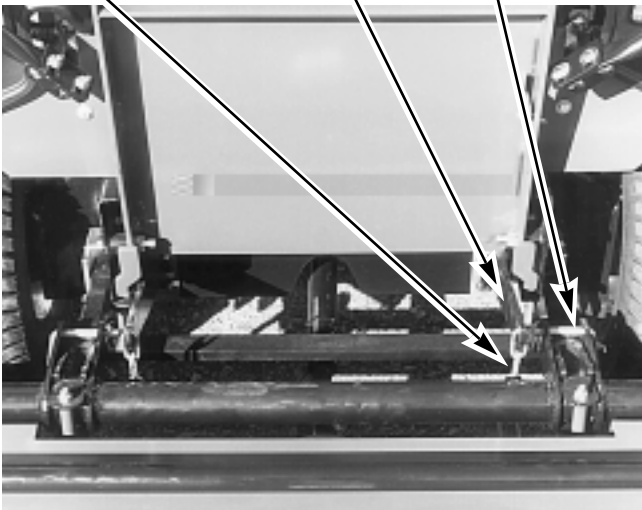
Pin Holding Lift Bar In Stored Location



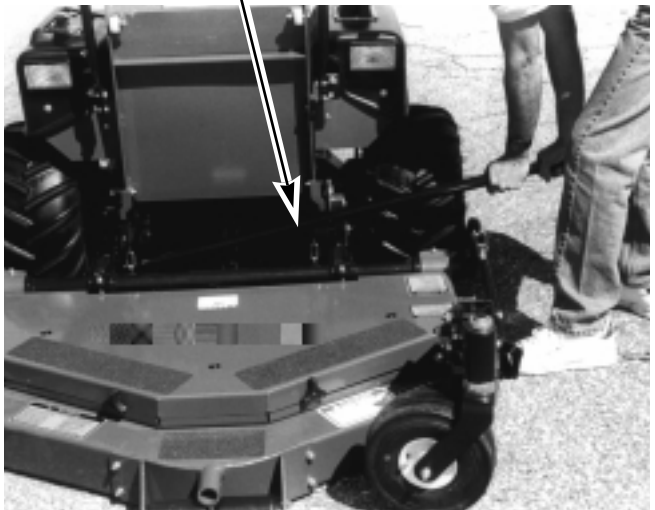
Lift Bar Being Removed From Stored Location



Lift Chains, Weight Transfer Arms, And Pins



Depressing Weight Transfer Arm To Release Chain



SECTION III MAINTENANCE



BEFORE PERFORMING ANY MAINTENANCE, TURN OFF ENGINE, REMOVE KEY AND DISCONNECT SPARK PLUGS. USE EXTREME CARE WHEN WORKING ON MACHINERY. DO NOT WEAR WATCH OR JEWELRY. DO NOT WEAR LOOSE FITTING CLOTHES, AND OBSERVE ALL COMMON SAFETY PRACTICES WITH TOOLS.

IMPORTANT:

BEFORE PERFORMING ANY SERVICING, MAINTENANCE OR REPAIR ON THE ENGINE, REFER TO THE RESPECTIVE ENGINE MANUFACTURERS OPERATOR'S MANUAL FOR SPECIFIC INFORMATION CONCERNING YOUR PARTICULAR BRAND OF ENGINE.

MAINTENANCE SCHEDULE

SERVICE	WHEN
Check crankcase oil level _____	before each use
Check air intake screen _____	after each use
Clean grass from under deck _____	after each use
Check tire pressure _____	every 10 hours
Sharpen mower blades _____	every 10 hours
Clean air filter element _____	every 25 hours
Check 20W50 motor oil in hydrostatic system _____	every 10 hours
Check drive belts _____	every 50 hours (20 hr breakin)
Grease driveline _____	every 50 hours
Grease deck pivot tube (2 fittings) _____	every 50 hours
Grease blade spindles _____	every 50 hours
Change engine crankcase oil _____	every 50 hours (5 hrs breakin)
Change engine oil filter _____	every 100 hours
Change hydrostatic oil filter (See your Bush Hog Dealer) Important: Substitution of an improper filter will cause hydrostatic failure which will not be covered under warranty _____	every 250 hours (50 hrs breakin)
Change oil in deck gearbox (Mobil SHC 630 Synthetic Motor Oil) (Never mix brands or types of oil! EP 80W90 Gear Oil may be substituted after gearbox has been completely drained of original oil.) _____	annually or 500 hours
Grease top bearing in deck gearbox with 1-2 shots _____	every 50 hours
Replace air filter element _____	annually or 500 hours
Check spark plugs _____	annually or 100 hours
Service battery _____	annually or 500 hours

Perform these maintenance procedures more frequently under extremely dusty, dirty conditions.

Replace decals when illegible. Write parts dept. for free replacement.

1. ENGINE:

For complete maintenance and operating information for your engine, please refer to your engine operating and maintenance instructions furnished by the engine manufacturer and included in your Zero Turn mower information packet.

NOTE
Air intake screen must be kept clean. If plugged, engine may be seriously damaged by over heating.

2. BATTERY:



WARNING

AVOID SERIOUS INJURY OR DEATH:

- **THE BATTERY CONTAINS SULFURIC ACID. AVOID CONTACT WITH SKIN, EYES OR CLOTHING. EYES - FLUSH WITH WATER AND GET PROMPT MEDICAL ATTENTION. ANTIDOTE: INTERNAL - DRINK LARGE QUANTITIES OF WATER OR MILK. FOLLOW WITH MILK OF MAGNESIA, BEATEN EGG OR VEGETABLE OIL. CALL A PHYSICIAN IMMEDIATELY.**
- **BATTERIES PRODUCE EXPLOSIVE GASES. KEEP SPARKS, FLAMES AND SMOKING MATERIALS AWAY. VENTILATE WHEN CHARGING IN AN ENCLOSED SPACE. WEAR EYE PROTECTION WHEN WORKING NEAR BATTERIES.**
- **KEEP OUT OF REACH OF CHILDREN.**

When taking the battery out of the mower for servicing, make sure to reconnect the cables to the battery exactly as they were prior to removal.

Keep the battery clean. Remove the corrosion around the battery terminals by applying a solution of one part baking soda to four parts water. Coat all exposed terminal surfaces with a light layer of grease or petroleum jell to prevent corrosion.

NOTE

At temperatures below 32 degrees F (0 deg C) the full charge state must be maintained to prevent cell electrolyte from freezing and causing permanent battery damage.

3. TIRES:

Correct tire pressure is essential for efficient operation of the mower. Check tire air pressure periodically. Inflate tires to the pressure listed:

TIRE PRESSURE

<u>Front Tires</u>	<u>Drive Tires</u>	<u>Rear Tires</u>
11" Sealant Filled	20"	13" 18 psi
22 psi	Turf Tire - 22 psi	
	Bar Tire - 22 psi	
	Knobby Tire (ATV Type) - 5 psi	

Lug nuts should be checked regularly for tightness. Torque lug nuts to 50 ft./lbs. The center hub nut should be torqued to 175 - 200 ft./lbs. and cotter key installed.

4. MOWER BLADES:

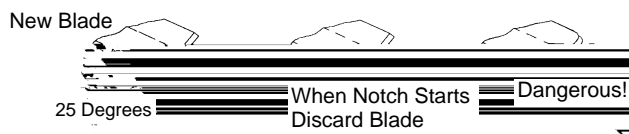
Check sharpness of mower blades after every 10 hours of operation. To sharpen blades proceed as follows:



CAUTION

STOP ENGINE, SET PARKING BRAKE, REMOVE IGNITION KEY AND SPARK PLUGS FOR SAFETY.

- A. Tilt deck up into raised position and secure with deck pins.
- B. Remove bolt, cup washer, and blade from shaft.
- C. Blades should be discarded when worn excessively. See sketch.



D. Sharpen blade with a hand file, electric grinder or blade sharpener. Wear gloves and eye protection when sharpening. Grind blade at original bevel.

E. Check balance of blade by positioning the blade on a nail or blade balance pedestal. Grind the blade on the end that is heavier until both sides balance.

F. Install blades with the concave side of the cup washer against blade. Be sure blades are installed with uplifts and cutting edges in the proper directions.

Tighten retaining bolt to 76 ft./lbs.

5. CHECKING DECK DRIVE GEARBOX FLUID LEVEL

A. Rotate deck into the upright position and secure with deck pins.

B. Remove the hex head plug at the low end of the gearbox housing. (Plug closest to the drive shaft.) The fluid level should be level with the bottom of the threaded hole.

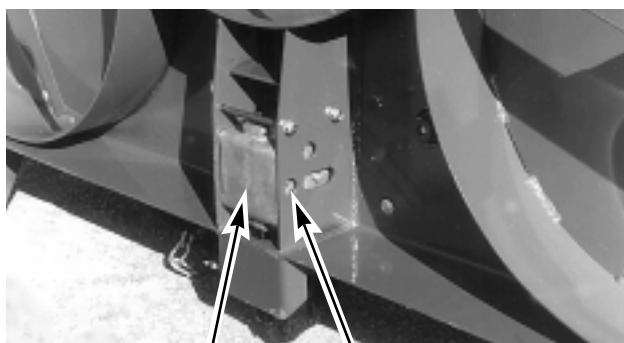
6. CHANGING FLUID IN DECK DRIVE GEARBOX (Annually or every 500 hours)

A. Rotate the deck into the upright position, secure deck with pins and remove drain plug from bottom edge of gearbox.

B. Lower deck to drain fluid.

C. When the fluid has drained from the gearbox, raise deck back up and fill with Mobil SHC 630 synthetic motor oil (or EP 80W90). Fill to the bottom of the hole that the plug was removed from.

D. Reinstall drain plug.



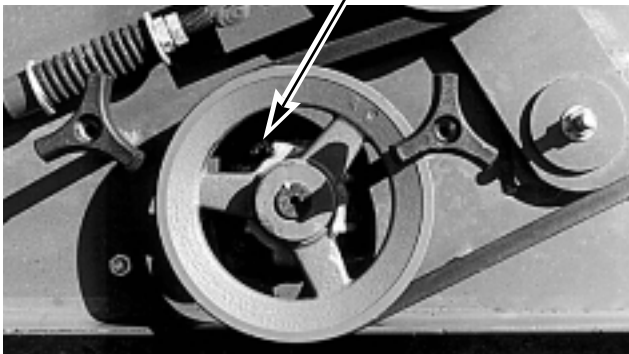
Deck Drive Gearbox

Drain/Fill/Check Plug

7. GREASING TOP BEARING IN GEARBOX

Grease top bearing with grease gun (1-2 shots) every 50 hours.

Grease Fitting For Top Bearing



NEUTRAL ADJUSTMENT - DRIVE

1. Raise the drive wheels of the Zero Turn off of the ground. Safely block the frame in this position so it is secure.
2. Check to be sure the self centering dampener is in synchronized with the control levers. (Pull back on control levers and let go; they should return to the neutral location.) This is adjusted by locking the control lever in the neutral position (swung out) and loosening the retainer nut on the self centering dampener located on either side of the seat frame. Allow the self centering dampener to locate the position in the slot and retighten the nut.
3. With the operator in the seat, start the engine, leaving the control levers in the neutral position. Release the parking brake. Check drive wheels for any rotation.
4. Stop engine and engage parking brake. If the drive wheels crept (rotated) in the neutral position this should be adjusted out. This adjustment is performed at the adjustable pump link on each corresponding pump. Make the adjustment by either lengthening or shortening the distance of the adjusting links. If the wheel rotates in the forward direction, shorten the rod. If the wheel rotates in the reverse direction, lengthen the rod. Retighten the jam nut. Start the engine and recheck the adjustment.
5. If wheel still creeps, repeat procedure in step 4.
6. After final adjustment is made (make sure that the jam nut is tight on pump link), take unit for a test drive.

DRIVE ADJUSTMENTS

Steering and motion controls should be uniform in all forward and reverse speeds. Levers should automatically return to neutral when released.

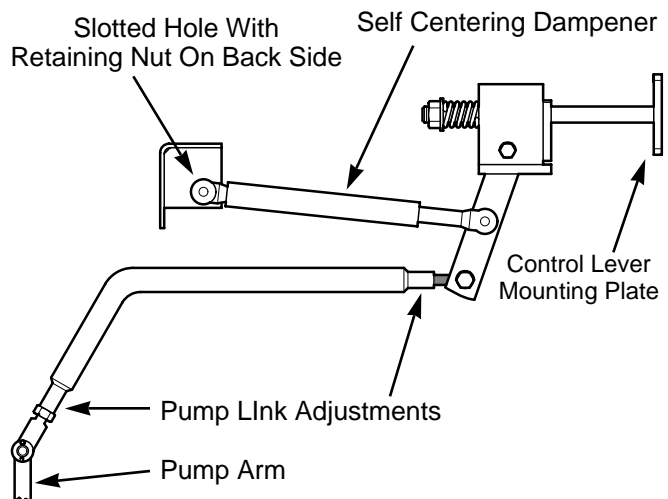


STOP THE ENGINE BEFORE MAKING ADJUSTMENTS.

TEST DRIVE OPERATIONS

Check air pressure in tires. Equal tire pressure is critical for proper drive operation.

1. Raise drive wheels off ground. Safely block the frame in this position.
2. Put control levers in neutral lock position (control levers swung outward).
3. Start engine.
Wheels should not rotate. If one or both drive wheels are turning, perform procedures under "Neutral Adjustments" for side(s) that wheel turns.



LEVELING THE DECK

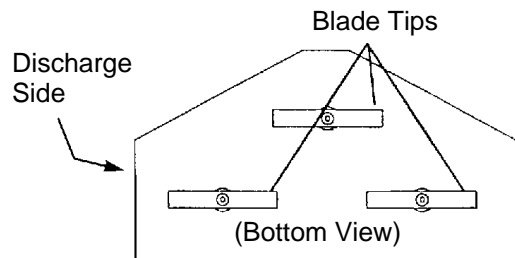


STOP ENGINE, SET PARKING BRAKE, REMOVE IGNITION KEY AND SPARK PLUG WIRES FOR SAFETY

1. Set all tire pressures to correct specifications.
2. Place machine on a level slab of concrete.
3. Lower the deck to ground level.
4. (SIDE TO SIDE) Wear heavy gloves and position the blades by hand so all the blades are pointed in the same direction from "SIDE TO SIDE". Measure from the blade tip (beveled edge) to the ground on all three blades. If there is more than 3/16" difference from one side to the other, the deck should be leveled.
5. Correct the difference by shortening or lengthening the side adjusting links. To raise the deck, shorten the length of the adjusting link. To lower the deck, lengthen the adjusting link.
6. (FRONT TO REAR) Wear heavy gloves and position the blades by hand so all the blades are pointed in the same direction from "FRONT TO REAR".

Measure from the blade tip (beveled edge) to the ground on all three blades. If there is more than 3/8" difference from front to rear, then the deck should be adjusted.

7. Also, correct this difference by shortening or lengthening both the left and right side adjusting links as stated above.

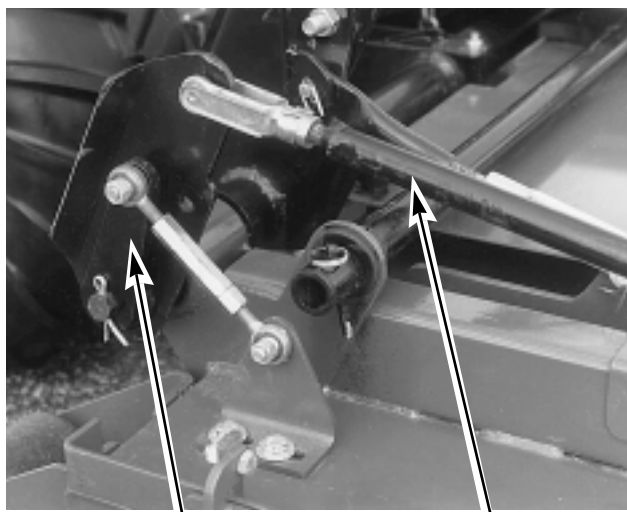


DECK BELT ADJUSTMENT

Belt adjustment should be checked every 50 hours to get maximum life and cutting performance from the mower. Belt tension is adjusted by increasing or decreasing the length of the spring on the movable idler. For proper belt tension on the 48", 54" and 60", mowers, **the spring length should be set at 2.88"**. To adjust the spring length, loosen or tighten the 1/2" hex nuts on the spring adjusting rod until the correct spring length is reached.

DECK BELT REPLACEMENT USE ONLY GENUINE BUSH HOG REPLACEMENT PARTS

- A. Remove the deck lift bar.
- B. Remove the deck shield assembly.



Torsion Bar Lever Arm
With Turnbuckle

Right Side
Deck Adjusting Link

C. Relieve the spring tension by loosening the two 1/2" hex nuts on the spring adjustment rod.

D. Remove old belt.

E. Install new belt. Be sure that the belt is properly positioned in all sheave grooves.

F. Adjust tension on the belt by adjusting the length of the spring on the moveable idler. **The correct spring length is 2.88"** for the 48", 54", and 60" decks.

G. Replace the deck shield assembly.

H. Replace the deck lift bar.

DECK SPINDLE BELT ROUTING

Spring Loaded Idler Assembly

Idler Spring Tension Adjustment
(Initial spring length should be set at 2.88")



⚠ WARNING ⚠

TO AVOID SERIOUS BURN INJURIES:
● ALLOW ENGINE, OIL AND HYDRAULIC FLUIDS TO COOL BEFORE SERVICING TRANSMISSION OR ENGINE SYSTEMS.

⚠ CAUTION ⚠

TO AVOID CLEANING SOLVENT FIRES:
● AVOID USING FLAMMABLE SOLVENTS.
● AVOID AREAS WITH IGNITION SOURCES WHEN USING FLAMMABLE SOLVENTS.

⚠ WARNING ⚠

HIGH PRESSURE HYDRAULIC FLUID LEAKS CAN PENETRATE SKIN CAUSING SERIOUS INJURY AND GANGRENE.

INJECTED FLUID MUST BE SURGICALLY REMOVED WITHIN A FEW HOURS BY A DOCTOR FAMILIAR WITH THIS TYPE OF INJURY.

TO AVOID SERIOUS INJURY FROM
PRESSURE LEAKS:

- USE CARDBOARD AND NOT HANDS TO SEARCH FOR LEAKS.
- RELIEVE HYDRAULIC PRESSURE BEFORE WORKING ON SYSTEM.
- CHECK HYDRAULIC HOSES, LINES, AND CONNECTIONS FOR TIGHTNESS AND GOOD CONDITION BEFORE APPLYING SYSTEM PRESSURE.

ZERO TURN 18 WITH OPTIONAL DUAL TAILWHEEL AND REAR WEIGHT KIT



START-UP MAINTENANCE

HYDROSTATIC FLUID

Bush Hog recommends the use of 20W50 motor oil in the hydrostatic reservoir.

START-UP PROCEDURE



WARNING

TO AVOID INJURY FROM EQUIPMENT GROUND TRAVEL AND MOVEMENT DURING

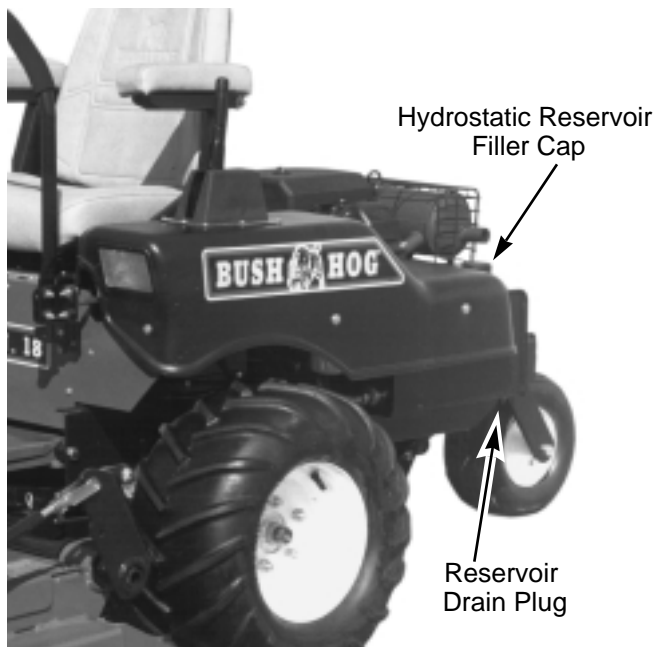
START-UP PROCEDURE:

DO NOT START OR JOG ENGINE UNTIL:

- **PUMP IS IN NEUTRAL POSITION**
- **DRIVE WHEELS ARE RAISED OFF THE GROUND.**
- **EQUIPMENT IS SECURELY BLOCKED-UP TO KEEP WHEELS FROM GROUND CONTACT.**
- **PTO AND OTHER WORK FUNCTIONS ARE DISCONNECTED.**
- **BODY AND CLOTHING IS KEPT AWAY FROM OTHER MOVING PARTS.**

Prior to starting the pump, make certain all system components (reservoir, fittings, etc.) are clean prior to filling with fluid.

Fill the reservoir with recommended fluid which should be filtered prior to entering the reservoir.



Start the engine and idle at the lowest possible RPM.

With the bypass valve closed, slowly move the displacement control in both the forward and reverse directions. As air is purged from the unit, the oil level in the reservoir will drop and bubbles may appear in the fluid. Refill the reservoir as necessary.

Place the steering levers in the neutral position and open the bypass valve. Slowly move the steering levers in both the forward and reverse directions to purge the air from the closed circuit.

Close the bypass valve and run the unit in both directions for several minutes until any remaining air is purged from the unit. Refill the reservoir as necessary.

Stop the engine, check for and correct any fluid leaks, and check the reservoir level. Add fluid if necessary. The transmission is now ready for operation.

HYDROSTATIC MAINTENANCE

Check the reservoir daily for proper fluid level.

The pump and motor units normally do not require regular fluid changes. The system filter should be changed after the first 50 hours of break-in, then every 250 hours thereafter. The fluid and filter should be changed and the system cleaned if the fluid becomes contaminated with foreign matter (water, dirt, etc.).

PARKING BRAKE ADJUSTMENT

Adjust the brake handle so that a 20 pound pull applied 1" from the top of the handle is required to lock handle in the up position.

TO TIGHTEN BRAKE: Turn knob on the top of handle in the clockwise direction.

ADJUSTING TRACTION SPRING TENSION

WARNING - Do not over extend springs. Over extension will cause loss of weight to rear of tractor. This could cause operator to lose control of the machine, particularly while going down a hill.

Tighten nut on the eye bolt until the threads are 1/2" past the end of the nut. Tighten the locking nut against the frame locking the eyebolt in place.

TROUBLESHOOTING CHECK LIST

1. ENGINE IDLES POORLY:

Carburetor maladjustment _____ readjust carburetor
Improper spark plug gap _____ check and re-gap plug

2. ENGINE BACKFIRES:

Carburetor maladjustment _____ readjust carburetor

3. ENGINE RUNS BUT POWER UNIT WON'T MOVE FORWARD

Drive belt loose or broken _____ re-tension or replace
Pump shift arm disconnected _____ reconnect
Hydrostatic reservoir oil low _____ add oil
Pump bypass valve open _____ put in closed position
Hydrostatic oil filter plugged _____ replace filter
Bad pump or motor _____ consult dealer

4. POWER UNIT LOSES POWER OR HYDROSTAT SYSTEM OVERHEATS

Hydrostatic oil reservoir too low _____ add oil
Pump or motor damaged _____ consult dealer
Hydrostatic oil reservoir blowing oil out cap _____ overfilled or water contaminated

5. ENGINE STALLS WHEN BLADES ARE ENGAGED

Operator not on seat _____ sit on seat
Faulty interlock system _____ consult dealer
Bad blade spindle bearing _____ consult dealer
Deck drive belt not properly routed _____ reroute
Blades blocked by foreign material _____ clean under deck

•See engine manual for engine adjustments

ENGINE ELECTRICAL TROUBLE SHOOTING

1. ENGINE WILL NOT TURN OVER:

Dead battery
Bad ground connection
Bad terminal connection at battery
Wiring harness plugs are not attached properly at
the key switch or the PTO switch
Bad parking brake switch
Bad safety interlock module
Bad PTO switch

2. ENGINE WILL TURN OVER, BUT WILL NOT START:

A. If there is spark at the plug:

No fuel
Bad fuel solenoid in engine
Bad electric fuel pump (Kawasaki only)

B. If there is no spark at the plug:

Make sure safety interlock system is sequenced:
PTO switch is off
Control levers in neutral position
Parking brake is on
Operator in seat
Check safety interlock switches:
Seat switch
Neutral switch
Bad ignition module on engine

SECTION IV ASSEMBLY

POWER UNIT ASSEMBLY

Mounting Drive Tires

Remove tractor from crating. Lay out hardware in bolt bag.

Mount the drive tires with the five 1/2" lug nuts provided. Bush Hog offers three styles of drive tires; Turf Tire, Knobby Tire, and a Bar Tire. When installing the bar tire please notice the direction of the cleats on the tires. Install the bar tires as pictured on page 18.

Torque the lug nuts to 50 ft./lbs.

Mounting the Single Rear Tailwheel

A. Remove the rear engine cover by loosening the three knobs.

B. Remove the tailwheel assembly from the box and assemble the wheel and fork assembly with the 1" clamp collar. Tighten collar with a socket head bolt.

Mounting the Dual Rear Tailwheel

A. Remove the rear engine cover by loosening the three knobs.

B. Remove the tailwheel assembly from the box and assemble the wheel and fork assembly with the 1" clamp collar. Tighten collar with a socket head bolt.

C. Attach the caster mount weldment to the power unit frame with (4) 1/2" x 1-1/2" capscrews and locknuts.

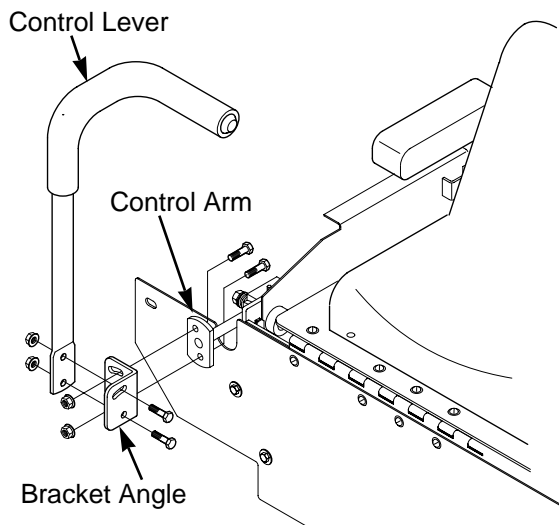
D. Install the spacer tube in the tailwheel assembly and align with the hole in the caster mount weldment. Secure with the 5/8" x 6-1/2" capscrew, flat-washer and locknut.

E. Reinstall the rear cover and tighten the three knobs.



Mounting the Control Levers

Attach the bracket angles to the control arms with the 5/16" x 1" capscrews and flange locknuts. Install each lever (grip inward) to the outside of each mount angle with 5/16" x 1" capscrews, flatwashers and flange locknuts. Adjust the levers so they are in line with each other. Refer to picture below.



Battery

Attach the positive lead to the battery.

Additional wire tie straps are shipped to secure wiring hardness as needed.

Items to Check:

Check oil level in the engine (see engine manual)

Check fluid level in the hydrostatic oil reservoir.

Check tightness of all fasteners, including bolts, lug nuts, and setscrews.

Check tire pressure.

BASIC DECK ASSEMBLY

(Refer To Exploded Drawing On Next Page)

A. Remove the deck from the crating. Layout hardware in the bolt bag.

B. Align the grass discharge shield with mounting holes on the right side of the deck. Attach with either two or three 3/8" x 1" capscrews and 3/8" locknuts. Tighten these fasteners tight and back off 1/8 turn to allow the shield to float.

C. Attach the deck lift handle assembly to the deck adjusting height plate with a 1/2" x 1-1/4" cap-screw and locknut. Tighten fastener tight and back off 1/8 turn to allow pivoting.

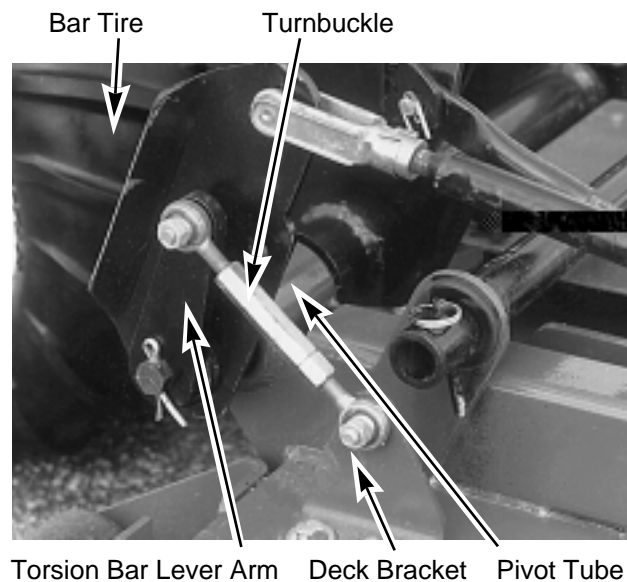
D. Attach the clevis end of the short rod assembly to the deck mount with clevis spring pin. Align the flattened end of the short rod assembly with the mounting ears on the lift handle assembly. Install the 3/8" x 1-1/8" linkage pin and one 1/8" cotter pin.

E. Install the last link of the four link chain to the rear hanging brackets located on the back of the deck. Secure with two 3/8" x 1" capscrews and locknuts.

F. Position the lift arm weldment such that the u-shaped cuffs extend between the ears on the pivot tube and fasten with two 3/8" x 3" carriage bolts and two locknuts. The carriage bolts should be positioned such that the bolts are installed from the bottom and the nut is tightened on the top.

54" OR 60" DECK TORSION BAR

A. Attach the deck bracket with 3/8 x 1" cap-screws, as shown below. Fasten the turnbuckle between the deck bracket and the torsion bar lever. With the deck in the fully raised, position, turn the turnbuckle so as to extend its length. The more it is extended, the more the torsion bar will be preloaded and the easier the deck will be to raise. The maximum center to center length of the turnbuckle should never exceed 6 inches.



BASIC DECK MOUNTING

A. With the foot plate raised, attach the PTO driveline to the lower spline shaft of the power unit. Move the mower deck to the front of the power unit. Install the 3/16" x 1" key into the shaft of the gearbox. Extend the driveline attaching the smooth yoke to the shaft of the gearbox. Position end of yoke approximately 1/4" from deck. **Torque the two setscrews to 31 ft./lbs.**

B. Move the deck closer to the power unit being careful not to over extend the power shaft. Align the lower hole of the lift arm weldment with the slotted hole in the power unit frame and pin with the two 1/2" x 2-1/4" clevis pin, flatwashers, and 1/8" x 1-1/2" cotter pins.

C. Rotate the deck lift handle past the lowest possible position and install the two deck locking pins and cotter pin in the deck hanger brackets.

D. Rotate the deck lift handle back toward the tractor and locate in the highest cutting position.

E. Use lift bar to apply pressure to the weight transfer arms and attach the upper link of the four link chain over the end of the arm, positioning in the cut out slot.

F. Rotate the deck lift handle forward to achieve a lower cutting height or rearward to achieve a higher cutting height and pin in the desired setting.

G. If the mower deck is not level refer back to Maintenance Section for instructions.

OPTIONAL - REAR WEIGHT KIT MOUNTING

The optional rear weight kit is shipped with three weights totaling 104 pounds. These weights can be assembled on the single tailwheel assembly or the dual tailwheel assembly. This kit includes fasteners and spacers to accommodate attaching to both assemblies.

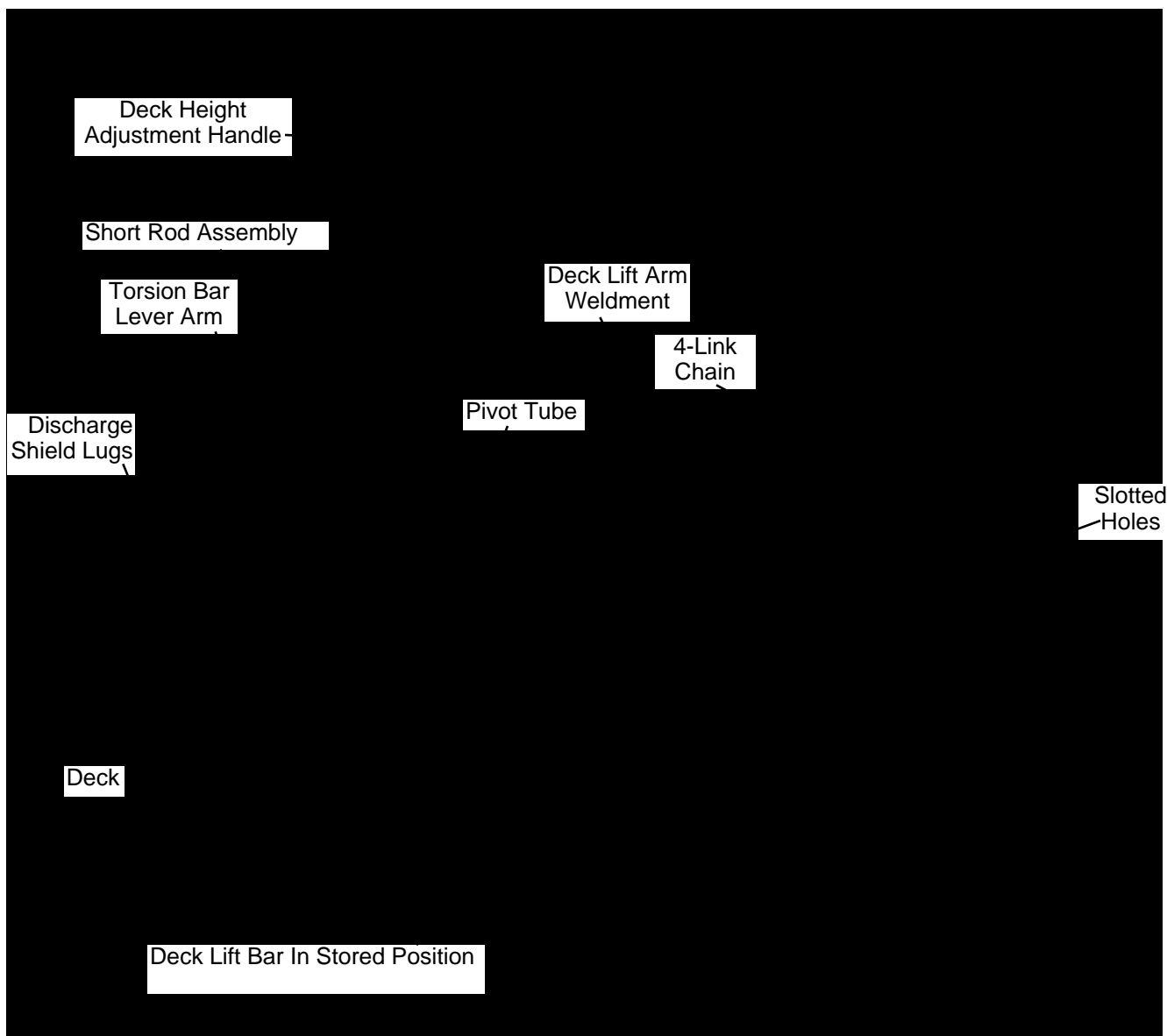
To mount to the single tailwheel:

1. Remove the rear shield.

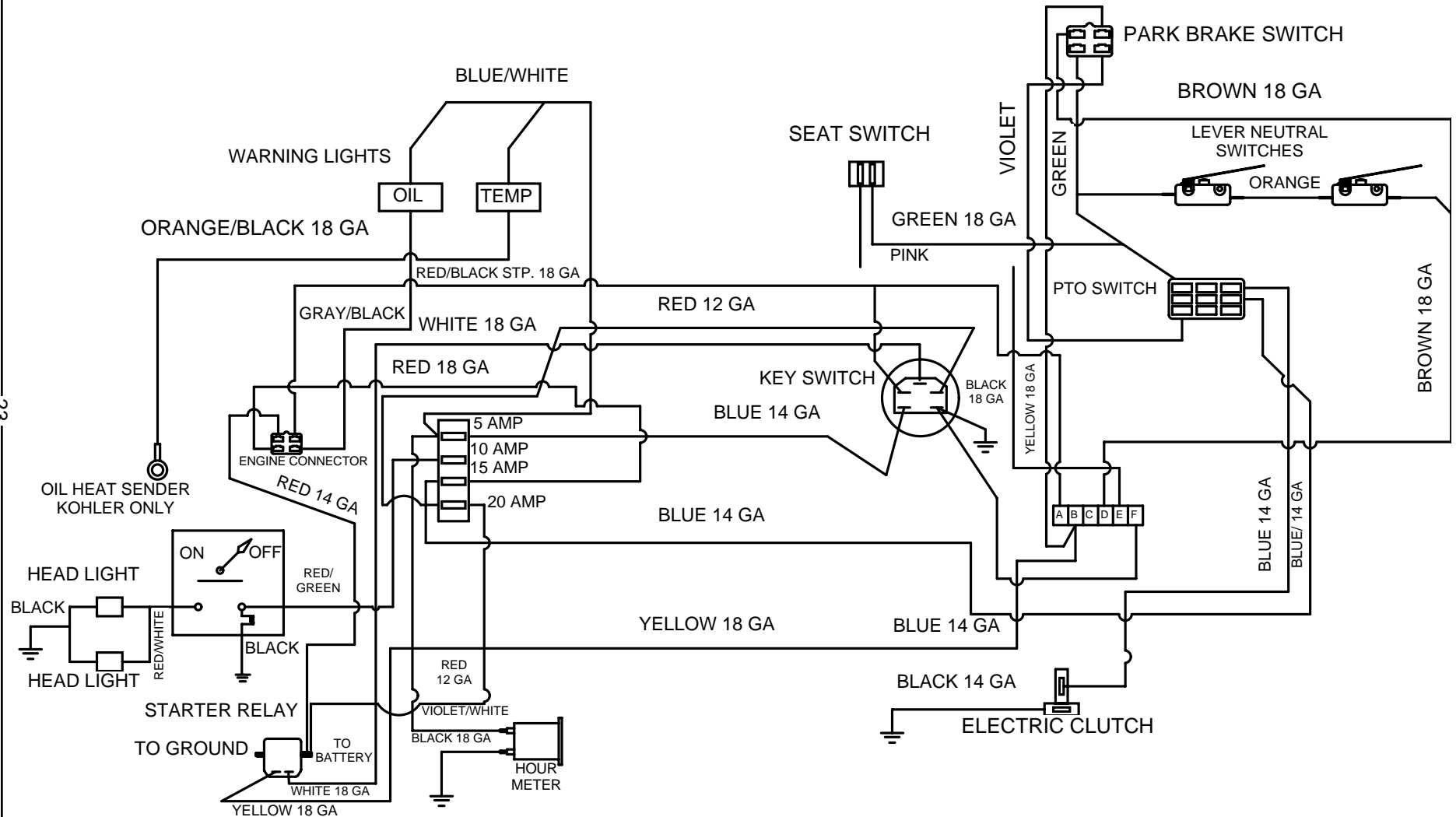
2. Position one 1/4" spacer on each leg of the formed channel of the single tailwheel frame.
3. Stack the three rear weights, aligning the four holes and spacers and install the four 5/16" x 4-1/4" capscrews, flatwashers, lockwashers and hex nuts.
4. Install the rear shield with two of the three knobs. The rear knob must be left off.

To mount to the dual tailwheel:

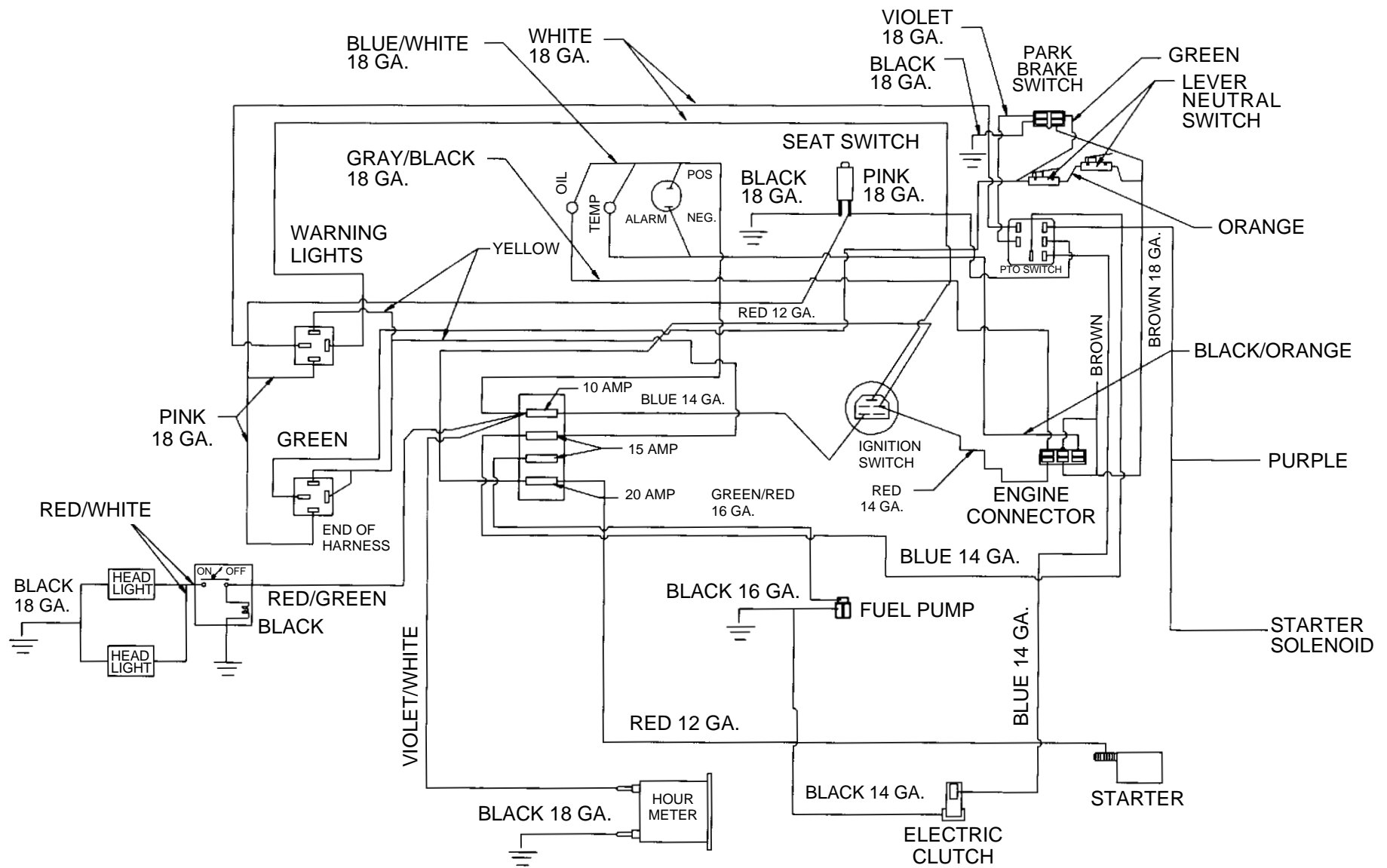
1. Remove the rear shield.
2. Position two 1-1/16" spacers toward the rear and two 1-1/2" spacer toward the engine. Spacers should be positioned over the four holes.
3. Stack the three rear weights, aligning the four holes and spacers and install the four 5/16" x 5-1/2" capscrews, flatwashers, lockwashers and hex nuts.
4. Install the rear shield with two of the three knobs. The rear knob must be left off.



KOHLER WIRING HARNESS



KAWASAKI WIRING HARNESS



SAFETY DECALS

To promote safe operation, Bush Hog supplies safety decals on all products manufactured. Because damage can occur to safety decals either through shipment, use or reconditioning, Bush Hog will, upon request, provide safety decals for any of our products in the field at no charge. Contact your authorized Bush Hog dealer for more information.

WARNING

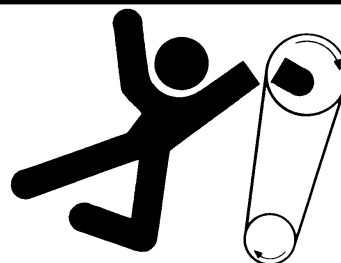


TO AVOID SERIOUS INJURY:

- OPERATE CONTROLS SMOOTHLY AND SLOWLY, ESPECIALLY ON SLOPES.
- MOVE VERY SLOWLY WHEN ATTACHMENT IS REMOVED.
- DO NOT OPERATE ON STEEP SLOPES; SEE OPERATOR'S MANUAL FOR DETAILS.
- ALWAYS LOOK BEHIND MACHINE BEFORE BACKING.
- DO NOT MOW WHERE MACHINE COULD SLIP OR TIP.
- BACK DOWN SLOPES. GO FORWARD UP SLOPES.

94136

DANGER



KEEP AWAY!

SHIELD MISSING FROM THIS AREA
TO AVOID SERIOUS INJURY OR DEATH,
DO NOT OPERATE WITHOUT THIS AND
ALL OTHER SHIELDS IN PLACE AND IN
GOOD CONDITION.

50012616

DANGER



KEEP AWAY!

- ★ ENTANGLEMENT WITH ROTATING DRIVE PARTS CAN CAUSE INJURY OR DEATH.
- ★ KEEP ALL DRIVE SHIELDS & GUARDS IN PLACE & IN GOOD CONDITION.

★ ALLOW NO RIDERS.

80488

DANGER



KEEP AWAY - ROTATING BLADES
SERIOUS INJURY OR DEATH CAN RESULT FROM
THROWN OBJECTS OR BLADE CONTACT.

- ★ DO NOT STAND ON OR NEAR MACHINE WHEN IN OPERATION.
- ★ KEEP HANDS AND FEET AWAY FROM UNDERNEATH CUTTER TO AVOID SERIOUS INJURY.
- ★ NEVER OPERATE WITHOUT DISCHARGE CHUTE OR GRASS CATCHER ASSEMBLY IN PLACE.

85020

WARNING

ROTATING DRIVE PARTS BENEATH

- ★ ENTANGLEMENT WITH ROTATING DRIVE PARTS CAN CAUSE INJURY OR DEATH.
- ★ DO NOT OPERATE WITHOUT THIS AND ALL OTHER SHIELDS IN PLACE AND IN GOOD CONDITION.

50012615



WARNING

TO AVOID SERIOUS INJURY OR DEATH,

- ★ READ OPERATORS MANUAL BEFORE OPERATING & FOLLOW ALL PRECAUTIONS. (CONTACT DEALER FOR MANUALS)
- ★ STOP ENGINE AND REMOVE KEY BEFORE DISMOUNTING.
- ★ ALLOW NO CHILDREN OR UNQUALIFIED PERSONS TO OPERATE EQUIPMENT.
- ★ NO RIDERS. DO NOT OPERATE MOWERS IN VICINITY OF OTHER PERSONS
- ★ KEEP SHIELDS AND GUARDS IN PLACE. KEEP CLEAR OF DRIVES AND BELTS.
- ★ DECREASE SPEED WHEN TURNING.

94135



CAUTION

- ★ SHUT OFF ENGINE BEFORE REFUELING
- ★ NEVER FILL FUEL TANK INDOORS OR WHEN ENGINE IS HOT.
- ★ WIPE UP ALL SPILLED GASOLINE BEFORE STARTING ENGINE.
- ★ DO NOT SMOKE WHILE REFUELING.

94131



WARNING

TO AVOID SERIOUS INJURY OR DEATH

DO NOT OPERATE MOWER WITHOUT DISCHARGE SHIELD OR DEFLECTOR IN PLACE AND GOOD REPAIR.

83056



WARNING



TO AVOID SERIOUS INJURY OR DEATH,

- ★ DO NOT ALTER ELECTRICAL SYSTEM. WRONG WIRING CONNECTIONS WILL DAMAGE ELECTRICAL COMPONENTS AND MAY MAKE THE SAFETY SWITCHES INOPERATIVE.
- ★ ALWAYS REMOVE JEWELRY BEFORE ATTEMPTING REPAIR OR REPLACEMENT OF ELECTRICAL COMPONENTS.

94132



WARNING

TO AVOID SERIOUS INJURY OR DEATH,

- ★ READ OPERATOR'S MANUAL BEFORE OPERATING & FOLLOW ALL PRECAUTIONS. (CONTACT DEALER FOR MANUALS)
- ★ LOWER IMPLEMENT, STOP ENGINE AND REMOVE KEY BEFORE DISMOUNTING.
- ★ NO RIDERS. DO NOT OPERATE MOWER IN VICINITY OF OTHER PERSONS.
- ★ ALLOW NO CHILDREN OR UNQUALIFIED PERSONS TO OPERATE EQUIPMENT.
- ★ CLEAR MOWING AREA OF DEBRIS.
- ★ KEEP SHIELDS AND GUARDS IN PLACE. KEEP CLEAR OF DRIVES AND BELTS.
- ★ SECURELY SUPPORT MOWER & REMOVE KEY BEFORE WORKING UNDERNEATH.
- ★ KNOW HOW TO STOP TRACTOR AND EQUIPMENT QUICKLY IN AN EMERGENCY.
- ★ BE CAREFUL ON UNEVEN TERRAIN. DECREASE SPEED WHEN TURNING.

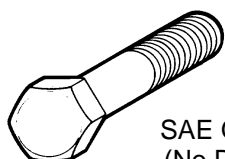
94134

TORQUE SPECIFICATIONS

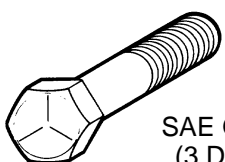
Proper torque for American fasteners used on Bush Hog equipment.
Recommended Torque in Foot Pounds (Newton Meters).*

AMERICAN

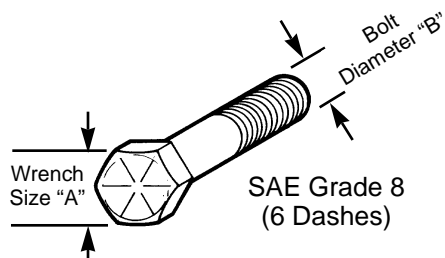
Bolt Head Markings



SAE Grade 2
(No Dashes)



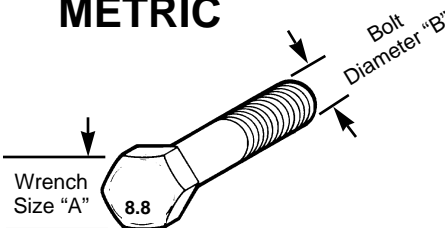
SAE Grade 5
(3 Dashes)



SAE Grade 8
(6 Dashes)

WRENCH SIZE (IN.) "A"	BOLT DIAMETER (IN.) "B" AND THREAD SIZE	SAE GRADE 2	SAE GRADE 5	SAE GRADE 8
7/16	1/4 - 20 UNC	6 (7)	8 (11)	12 (16)
7/16	1/4 - 28 UNF	6 (8)	10 (13)	14 (18)
1/2	5/16 - 18 UNC	11 (15)	17 (23)	25 (33)
1/2	5/16 - 24 UNF	13 (17)	19 (26)	27 (37)
9/16	3/8 - 16 UNC	20 (27)	31 (42)	44 (60)
9/16	3/8 - 24 UNF	23 (31)	35 (47)	49 (66)
5/8	7/16 - 14 UNC	32 (43)	49 (66)	70 (95)
5/8	7/16 - 20 UNF	36 (49)	55 (75)	78 (106)
3/4	1/2 - 13 UNC	49 (66)	76 (103)	106 (144)
3/4	1/2 - 20 UNF	55 (75)	85 (115)	120 (163)
7/8	9/16 - 12 UNC	70 (95)	109 (148)	153 (207)
7/8	9/16 - 18 UNF	79 (107)	122 (165)	172 (233)
15/16	5/8 - 11 UNC	97 (131)	150 (203)	212 (287)
15/16	5/8 - 18 UNF	110 (149)	170 (230)	240 (325)
1-1/8	3/4 - 10 UNC	144 (195)	266 (360)	376 (509)
1-1/8	3/4 - 16 UNF	192 (260)	297 (402)	420 (569)
1-5/16	7/8 - 9 UNC	166 (225)	430 (583)	606 (821)
1-5/16	7/8 - 14 UNF	184 (249)	474 (642)	668 (905)
1-1/2	1 - 8 UNC	250 (339)	644 (873)	909 (1232)
1-1/2	1 - 12 UNF	274 (371)	705 (955)	995 (1348)
1-1/2	1 - 14 UNF	280 (379)	721 (977)	1019 (1381)
1-11/16	1-1/8 - 7 UNC	354 (480)	795 (1077)	1288 (1745)
1-11/16	1-1/8 - 12 UNF	397 (538)	890 (1206)	1444 (1957)
1-7/8	1-1/4 - 7 UNC	500 (678)	1120 (1518)	1817 (2462)
1-7/8	1-1/4 - 12 UNF	553 (749)	1241 (1682)	2013 (2728)
2-1/16	1-3/8 - 6 UNC	655 (887)	1470 (1992)	2382 (3228)
2-1/16	1-3/8 - 12 UNF	746 (1011)	1672 (2266)	2712 (3675)
2-1/4	1-1/2 - 6 UNC	870 (1179)	1950 (2642)	3161 (4283)
2-1/4	1-1/2 - 12 UNF	979 (1327)	2194 (2973)	3557 (4820)

METRIC



Numbers appearing on bolt heads
indicate ASTM class.

Proper torque for metric fasteners used on Bush Hog equipment.
Recommended torque in foot pounds (newton Meters).*

WRENCH SIZE (mm) "A"	BOLT DIA. (mm) "B"	ASTM 4.6	ASTM 8.8	ASTM 9.8	ASTM 10.9
8	5	1.8 (2.4)		5.1 (6.9)	6.5 (8.8)
10	6	3 (4)		8.7 (12)	11.1 (15)
13	8	7.3 (10)		21.1 (29)	27 (37)
16	10	14.5 (20)		42 (57)	53 (72)
18	12	25 (34)	74 (100)	73 (99)	93 (126)
21	14	40 (54)	118 (160)	116 (157)	148 (201)
24	16	62 (84)	167 (226)	181 (245)	230 (312)
30	20	122 (165)	325 (440)		449 (608)
33	22		443 (600)		611 (828)
36	24	211 (286)	563 (763)		778 (1054)
41	27		821 (1112)		1138 (1542)
46	30	418 (566)	1119 (1516)		1547 (2096)

*Use 75% of the specified torque value for plated
fasteners. Use 85% of the specified torque
values for lubricated fasteners.



BUSH HOG

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